

Appl. No. 10/805,048  
Amdt. Dated Sep. 19, 2005  
Reply to Office Action of June 17, 2005

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A ~~current~~ driving apparatus for generating a drive current, comprising:

a first square wave generator directed to accomplish ~~[[the]]~~ timing control of the drive current, the first square wave generator comprising a first comparator, a low frequency sawtooth wave generator, and a timing control signal source, wherein the low frequency sawtooth wave generator is connected to one input of the first comparator, and the timing control signal source is connected to another input of the first comparator;

a second square wave generator directed to accomplish ~~[[the]]~~ amplitude control of the drive current;

~~an FET~~ a field effect transistor; and

a power source;

wherein an output of the first square wave generator's output generator is connected to an input of the second square wave generator's input generator, an output of the second square wave generator's output generator is connected to a gate of the FET-gate field effect transistor, a current clamping resistor is provided between a source of the FET-source field effect transistor and the power supply, and a drain of the FET-drain field effect transistor generates the drive current to drive a possible desired load.

Claim 2 (canceled)

Claim 3 (currently amended): The ~~current~~ driving apparatus according to claim 1, wherein the second square wave generator comprises a second

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comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, and wherein one input of the variable amplifier is connected to the output of the first square wave generator, ~~the other~~ another input of the variable amplifier is connected to the amplitude control signal source, ~~[[the]]~~ an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to ~~the other~~ another input of the second comparator.

Claim 4 (currently amended): The ~~current~~ driving apparatus according to ~~elaimed~~ claim 3, wherein the variable amplifier is a photosensitive resistor amplifier.

Claim 5 (currently amended): The ~~current~~ driving apparatus according to ~~elaimed~~ claim 4, wherein the photosensitive resistor amplifier comprises ~~an LED~~ a light emitting diode, a photosensitive resistor, an operational amplifier, a reference signal source, and a pair of resistors, the ~~[[LED]]~~ light emitting diode is connected to the reference signal source and illuminates the photosensitive resistor, which is connected between ~~[[the]]~~ a negative input and ~~[[the]]~~ an output of the operational amplifier, one of the resistors is connected between the negative input of the operational amplifier and ~~[[the]]~~ an input signal source, and the other ~~of the resistors~~ resistor couples ~~[[the]]~~ a positive input of the operational amplifier and ground.

Claim 6 (currently amended): A ~~current~~ driving apparatus, comprising:  
a first square wave generator directed to accomplish ~~[[the]]~~ timing control of a drive current, the first square wave generator comprising a first comparator, a low frequency sawtooth wave generator, and a timing control signal source, wherein the low frequency sawtooth wave generator is connected to one input of the first comparator, and the timing control signal

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source is connected to another input of the first comparator;

a second square wave generator directed to accomplish [[the]] amplitude control of the drive current;

~~an FET~~ a field effect transistor; and

a power source; wherein

said the first square wave generator and the second square wave generator are sequentially connected together, an output of one of the first square wave generator and the second square wave generator is connected to a gate electrode of the [[FET]] field effect transistor, the power source is connected to a source electrode of [[FET]] the field effect transistor, and a drain electrode of [[FET]] the field effect transistor generates a linearly variable drive current.

Claim 7 (canceled)

Claim 8 (new): The driving apparatus according to claim 6, wherein the second square wave generator comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, and wherein one input of the variable amplifier is connected to the output of the first square wave generator, another input of the variable amplifier is connected to the amplitude control signal source, an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to another input of the second comparator.

Claim 9 (new): A driving apparatus for generating a drive current, comprising:

a first square wave generator directed to accomplish timing control of the drive current;

a second square wave generator directed to accomplish amplitude control of the drive current, wherein the second square wave generator

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comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, one input of the variable amplifier is connected to an output of the first square wave generator, another input of the variable amplifier is connected to the amplitude control signal source, an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to another input of the second comparator;

a field effect transistor; and

a power source;

wherein an output of the second square wave generator is connected to a gate of the field effect transistor, a current clamping resistor is provided between the field effect transistor source and the power supply, and a drain of the field effect transistor generates the drive current to drive a desired load.

Claim 10 (new): The driving apparatus according to claim 9, wherein the variable amplifier is a photosensitive resistor amplifier.

Claim 11 (new): The driving apparatus according to claim 10, wherein the photosensitive resistor amplifier comprises a light emitting diode, a photosensitive resistor, an operational amplifier, a reference signal source, and a pair of resistors, the light emitting diode is connected to the reference signal source and illuminates the photosensitive resistor, which is connected between a negative input and an output of the operational amplifier, one of the resistors is connected between the negative input of the operational amplifier and an input signal, and the other resistor couples a positive input of the operational amplifier and ground.